

Notice of Allowability

Application No.

09/954,808

Examiner

William Jung

Applicant(s)

STEINBACHER ET AL.

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to August 24, 2005.
2. ☒ The allowed claim(s) is/are 1-8, 10-19 and 21-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Joseph M. Butscher (Reg. No. 48,326) on November 10, 2005.

The application has been amended as follows:

Please replace claims 1, 6, 7, 8, 11, 13, 14, and 15 as follows;

1. A method for obtaining ultrasound images, comprising:
transmitting first and second ultrasound beams along a common scan line into a region of interest (ROI) of a patient;
receiving a plurality of first and second echoes from said ROI, said plurality of first echo echoes representing reflections along an entire scan line of said first ultrasound beam, said plurality of second echo echoes representing reflections of said entire scan line of said second ultrasound beam;
multiplying said plurality of first echoes and said plurality of second echoes with at least one weighting factor to form a first plurality of weighted echoes and a second plurality of weighted echoes; and
summing said plurality of first and second of weighted echoes along said entire scan line ~~multiplying said first and second echoes with at least one weighting factor to form first and second weighted echoes; and summing said first and second weighted echoes along said entire scan line to form a composite scan line in an ultrasound image.~~

6. The method of claim 1, wherein said receiving step further comprises: receiving said plurality of first and second echoes at different first and second receive frequencies.

7. The method of claim 1, wherein said receiving step further comprises: receiving said plurality of first and second echoes at different first and second receive bandwidths.

8. The method of claim 1, wherein said receiving step further comprises: receiving said plurality of first and second echoes at different first and second receive focus depths.

11. The method of claim 10, wherein:
said transmitting step further comprises transmitting said plurality of first and second ultrasound beams at different focus depths and at different transmission apertures;
and

said receiving step further comprises receiving said plurality of first and second echoes at different receive center frequencies.

13. A method for obtaining ultrasound images, comprising:

transmitting first and second ultrasound beams along a common scan line into a region of interest (ROI) of a patient;

receiving a plurality of first and second echoes from said ROI, said plurality of first ~~echo~~ echoes representing reflections along an entire scan line of said first ultrasound beam, said plurality of second ~~echo~~ echoes representing reflections of said entire scan line of said second ultrasound beam; and

combining said plurality of first and second echoes along said entire scan line to form a composite scan line in an ultrasound image, wherein said combining comprises: (a) multiplying said plurality of first echoes and said plurality of second echoes with at least one weighting factor to form a first plurality of weighted echoes and a second plurality of weighted echoes; and (b) summing said plurality of first and second weighted echoes along said entire scan line.

wherein said first and second ultrasound beams are focused at predetermined different first and second depths along said entire scan line.

14. A method for obtaining ultrasound images, comprising:

transmitting first and second ultrasound beams along a common scan line into a region of interest (ROI) of a patient;

receiving a plurality of first and second echoes from said ROI, said plurality of first ~~echo~~ echoes representing reflections along an entire scan line of said first ultrasound beam, said plurality of second ~~echo~~ echoes representing reflections of said entire scan line of said second ultrasound beam; and

~~combining said plurality of first and second echoes along said entire scan line to form a composite scan line in an ultrasound image;~~

multiplying said plurality of first echoes and said plurality of second echoes with at least one weighting factor to form a first plurality of weighted echoes and a second plurality of weighted echoes; and

summing said plurality of first and second weighted echoes along said entire scan line,

wherein said first and second ultrasound beams are generated by exciting a

plurality of transducer elements defining an aperture size of a probe, said first and second ultrasound beams being generated with a different number of transducer elements corresponding to different first and second aperture sizes.

15. The method of claim 14, wherein said receiving step further comprises: receiving said plurality of first and second echoes at different first and second receive focus depths.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Jung, Ph.D. whose telephone number is 571-272-4739. The examiner can normally be reached on Mon-Fri 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WJ

November 11, 2005